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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,185

08/11/2006

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EXAMINER

MOON, SEOKYUN

ART UNIT

PAPER NUMBER

2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,185	Applicant(s) LUO, DAVID	
	Examiner SEOKYUN MOON	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) 29-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-28 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Rejection of Claims in the Last Office Action

1. The previously presented claims 21-26, 28, and 37-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP Publication No. 1962-1636 by Maeda in view of U.S. Patent No. 4,551,717 by Dreher.

The previously presented claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Dreher as applied to claim 21-26, 28, and 37-38 above, and further in view of U.S. Publication No. 2004/0022047 by Okayasu.

Response to Arguments

2. The Applicant's argument filed December 21, 2010 has been fully considered.

Regarding the newly amended independent claims 21 and 38, the Applicant appears to argue [Remarks: pg 10] that the combination of Maeda and Dreher does not teach the newly added subject matter. Specifically, the Applicant points out [Remarks: pg 10 3rd paragraph] that Maeda teaches a color selective filtering method while the instant invention uses a color rejection filtering method.

Examiner respectfully disagrees.

Examiner respectfully submits the Applicant has failed to point out the difference between the color selective filtering method of Maeda and **the claimed** color rejection filtering method. According to the specification of Maeda [pg 2 the last paragraph - pg 3 1st paragraph and pg 4 lines 13-21], the "display symbol 2" [Maeda: drawings 3] is transparent and not tinted

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and the whole portion of the "display plate 1" excluding the "display symbol 2" is transparent and includes a red tinted layer. When blue colored light is emitted toward the "display plate 1", the blue colored light is absorbed in the whole portion of the "display plate 1" excluding the "display symbol 2" because the whole portion includes the red tinted layer, but passes through the "display symbol 2" because the "display symbol 2" is not tinted. Thus, even though the whole portion of the "display plate 1" is transparent, it would be reasonable to construe the whole portion of the "display plate 1" excluding the "display symbol 2" as the claimed functional areas with absorption spectra corresponding to all colors other than red color. Accordingly, Maeda does teach the newly added claim limitation. Detailed explanation regarding how Maeda teaches the newly added claim limitation is provided in the rejection of the claims.

Regarding the previously presented claim 25, the Applicant argues [Remarks: pg 11 2nd paragraph] that the combination of Maeda and Dreher does not teach the claim limitation, "at least three modulation values of said modulator".

However, Examiner respectfully submits that the previous rejection of claim 25 was based on the teachings of Maeda and Dreher and the Court Case. Maeda as modified by Dreher teaches each key comprising **two** superposed filters for **two** modulation values of the modulator. The difference between the claimed invention and the teachings of Maeda and Dreher is **one additional** filter for **one additional** modulation value of the modulator. Since Maeda as modified by Dreher teaches all the structure and the driving method of the filter and the modulator, merely duplicating and adding the structure and the method to the teaching of Maeda as modified by Dreher would be an obvious variation from the teaching of Maeda as modified by Dreher, according to the cited Court Case.

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For the foregoing reasons, Examiner respectfully submits that none of the Applicant's arguments are persuasive.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 21-28 and 37-39** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to **claims 21 and 38**, the claims disclose, "*at least one filter's functional areas have substantially different spectrum than all emission spectra of said light source*". However, Examiner respectfully submits that none of the specification and the drawings of the instant Application supports the above claimed subject matter. According to the above claim limitation, the spectrum of one filter's functional areas is different from **all emission spectra of the light source**. However, if that is true, then the spectrum of the one filter's functional areas cannot absorb any of emission spectra of the light source and thus cannot display the message.

Appropriate correction or explanation is required.

As to **claims 22-28, 37, and 39**, the claims are rejected as being dependent upon the base claims rejected under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 21-26, 28, and 37-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP Publication No. 1962-1636 by Maeda in view of U.S. Patent No. 4,551,717 by Dreher.

As to **claim 21**, Maeda teaches a display [fig. 1 and pg 1], comprising:

a plurality of superposed filters [fig. 2, "transparent display plates 1 and 4"] each corresponding to a spectrum of the light (As explained in pg 4 of the specification, the display plates allow light of a certain color/spectrum to pass through the display plates while they block light of another color/spectrum.) and to a message to be displayed on the display [fig. 2, "A" and "B"]; and

a light source [fig. 2, the combination of "bulbs 7 and 8"] adapted to light up, by backlighting, the superposed filters of the display;

a modulator [pg 4 and fig. 2, the combination of the means for supplying power to the "bulbs 7 and 8 and the means for switching the operation of the "bulbs 7 and 8"] for modulating at least one physical characteristics of the light source, adapted to modulate at least one spectrum of the light emitted by the light source, to make visible a message placed on the filter of the display; and

each filter has transparent areas [drawing 3, the area corresponding to the "display symbol 2"] and functional areas [drawing 3, the whole portion of "transparent display plate 1"

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excluding the "display symbol 2"] with absorption spectra respectively corresponding substantially to emission spectra of the light source (Note that, the "transparent display plate 1 is tinted with red color. And thus it absorbs any color other than the red color. Since the light source emits blue light, the absorption spectra of the "transparent display plate 1" corresponds to the blue spectra in the display of Maeda.), for different modulation values of the modulator;

at least one filter's functional areas [drawing 3, the whole portion of "transparent display plate 1" excluding the "display symbol 2"] have substantially different spectrum than all emission spectra of the light source (The absorption spectra of the "transparent display plate 1" excluding the "display symbol 2" is all colors other than red.), for different modulation values of the modulator; and

a reception device [pg 4, the means for controlling the means for switching], which is adapted to assign different symbols to signals, in line with a switching carried out by a switching means [pg 4, the means for switching the operation of the "bulbs 7 and 8"].

Maeda teaches that the plurality of superposed filters, the light source, the modulator, and the reception device are included in the display, as discussed above.

Maeda does not teach that the plurality of superposed filters, the light source, the modulator, and the reception device are included in at least one key of a keyboard.

However, Dreher teaches the concept of including a display in at least one key of a keyboard [col. 1 lines 6-9 and 46-52], wherein the at least one key has a contactor [fig. 2, "switch 20"] adapted to supply a signal representative of an interaction between a user and the key [col. 2 lines 52-57] and a reception device [fig. 3, "microcircuit 30"] receiving signals from the contactor and assigning different symbols to the signals [col. 3 lines 10-17].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the display of Maeda in at least one key of a keyboard, wherein the at least one key has a contactor adapted to supply a signal representative of an interaction between a user and the key and the reception device receiving signals from the contactor and assigning different symbols to the signals, as taught by Dreher, in order to allow the at least one key to display different symbols without using a liquid crystal display.

As to **claim 22**, Maeda as modified by Dreher teaches that each filter [Maeda: fig. 2, “transparent display plates 1 and 4”] is made up of a transparent or translucent medium having the message [Maeda: figs. 3 and 4, “A” and “B”] printed thereon.

As to **claim 23**, Maeda as modified by Dreher teaches that the light source is adapted to light up jointly, by backlighting, a plurality of keys and the superposed filters thereof, and wherein the modulator of at least one physical characteristic of the light source is adapted to modulate at least one value of the physical characteristic of the light emitted by the light source and received by a plurality of keys, in order to jointly make visible the messages placed on the filter of each the key [Maeda: pg 4].

As to **claim 24**, Maeda as modified by Dreher teaches that each filter [Maeda: fig. 2, “transparent display plates 1 and 4”] has transparent areas and areas with absorption spectra [Maeda: pg 4, the area absorbing the light having the light spectrum different from the light spectrum of the area] respectively corresponding substantially to emission spectra of the light source, for different modulation values of the modulator.

As to **claim 25**, Maeda as modified by Dreher teaches that each of the keys comprises at least two superposed filters [Maeda: fig. 2, “transparent display plates 1 and 4”], the filters

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having transparent areas and areas [Maeda: pg 4, the area absorbing the light having the light spectrum different from the light spectrum of the area] with absorption spectra respectively corresponding substantially to emission spectra of the light source, for at least two modulation values of the modulator.

Maeda as modified by Dreher does not teach that each of the keys comprises at least three superposed filters.

However, the courts have held that a mere duplication of the components of the device is generally recognized as being within the level of ordinary skill in the art. St. Regis Paper Co. v. Bemis Co. Inc. 193 USPQ 8, 11 (7TH Cir. 1977).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the key of Maeda as modified by Dreher to superpose additional filters on top of the filters of Maeda as modified by Dreher, in order to allow the key to display more than two symbols.

As to **claim 26**, Maeda as modified by Dreher teaches that the modulator [Maeda: pg 4 and fig. 2, the combination of the means for supplying power to the “bulbs 7 and 8 and the means for switching the operation of the “bulbs 7 and 8”] is adapted to modify a spectral band of light reaching the filters and the filters provide spectral bands of different transparency (As explained in page 4 of the specification of Maeda, each of “display transparent plates 1 and 4” allow light having certain light spectrum to pass through the plates and block the light having different light spectrum.).

As to **claim 28**, Maeda as modified by Dreher teaches that the light source comprises at least two independent electro-optical transducers [Maeda: fig. 2, the combination of “bulbs 7 and

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8"] placed on an optical path of light rays from the light source to the key, and the modulator [Maeda: pg 4 and fig. 2, the combination of the means for supplying power to the "bulbs 7 and 8 and the means for switching the operation of the "bulbs 7 and 8"] is adapted to control alternately the light emission by either one of the electro-optical transducers.

Maeda as modified by Dreher does not expressly teach the two independent electro-optical transducers being placed in parallel.

However, the courts have held that a mere rearrangement of the components of a device is generally recognized as being within the level of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the electro-optical transducers of Maeda as modified by Dreher to be placed in parallel, in order to allow the light emitted by the electro-optical transducers to pass through the transparent display plates perpendicularly and thus to provide an uniform brightness on the display.

As to **claim 37**, Maeda as modified by Dreher teaches that the key is integrated with a keyboard [Dreher: col. 1 lines 6-9].

Maeda as modified by Dreher does not expressly teach the keyboard being used in a portable computer.

However, Examiner takes Official Notice that it is well known in the art to include a keyboard in portable computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the plurality of keys of Maeda as modified by Dreher as the inputting means of a

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portable computer, in order to provide a portable computer having keys configured to display different symbols.

As to **claim 38**, Maeda teaches a display method, which comprises the following method steps:

switching a light source [fig. 2, “bulbs 7 and 8”] adapted to light up, by backlighting, at least one display, the display including:

at least two superposed filters [fig. 2, “transparent display plates 1 and 4”] each filter corresponding to a spectrum of the light (As explained in pg 4 of the specification, the display plates allow light of a certain color/spectrum to pass through the display plates while they block light of another color/spectrum.) and to a message to be displayed on the display [fig. 2, “A” and “B”]; each filter has transparent areas [drawing 3, the area corresponding to the “display symbol 2”] and functional areas [drawing 3, the whole portion of “transparent display plate 1” excluding the “display symbol 2”] with absorption spectra respectively corresponding substantially to emission spectra of the light source (Note that, the “transparent display plate 1 is tinted with red color. And thus it absorbs any color other than the red color. Since the light source emits blue light, the absorption spectra of the “transparent display plate 1” corresponds to the blue spectra in the display of Maeda.) and at least one filter’s functional areas [drawing 3, the whole portion of “transparent display plate 1” excluding the “display symbol 2”] have substantially different spectrum than all emission spectra of the light source (The absorption spectra of the “display plate 1” excluding the “symbol 2” is all colors other than red.); and

modulating at least one spectrum the light emitted by the light source, in order to jointly make visible a message placed on a filter of the display (As explained in page 4 and shown on figure 2, the “bulbs 7 and 8” are operated alternately. Examiner construed the combination of the means for supplying power to the “bulbs 7 and 8 and the means for operating the “bulbs 7 and 8” alternately as the means for the modulation.); and

different symbols are assigned to signals, depending on a state of a switching means performing the switching [pg 4, the means for switching the operation of the “bulbs 7 and 8”].

Maeda does not teach that the display is included in a key.

However, Dreher teaches the concept of including a display in at least one key of a keyboard [col. 1 lines 6-9 and 46-52], wherein the at least one key has a contactor [fig. 2, “switch 20”] adapted to deliver a signal representative of an interaction between a user and the key [col. 2 lines 52-57] and a reception device [fig. 3, “microcircuit 30”] receiving signals from the contactor and assigning different symbols to the signals [col. 3 lines 10-17].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the display of Maeda in at least one key of a keyboard, wherein the at least one key has a contactor adapted to supply a signal representative of an interaction between a user and the key and a reception device receiving signals from the contactor and assigning different symbols to the signals, as taught by Dreher, in order to allow the at least one key to display different symbols without using a liquid crystal display.

As to **claim 39**, Maeda as modified by Dreher inherently teaches that each filter has transparent areas with less than 100% transparency because none of physical objects including glass and ITO which provides high transparent ratio can provide 100% transparency because of

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the light reflection or deflection on the particles of the object and thus the filter of Maeda cannot provide 100% transparency.

7. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Dreher as applied to claim 21-26, 28, and 37-38 above, and further in view of U.S. Publication No. 2004/0022047 by Okayasu.

Maeda as modified by Dreher teaches that the light source comprises two light bulbs emitting lights having different colors and the modulator is adapted to control the light emitted by the light bulbs.

Maeda as modified by Dreher does not teach that the light source comprises a light emitting diode having a spectral band of emission that varies according to an electrical characteristics of a power signal applied thereto, and the modulator is adapted to modify the electrical characteristics.

However, Okayasu teaches the concept of using a light emitting diode having a spectral band of emission that varies according to an electrical characteristics of a power signal applied thereto [par. (0005)] to output lights having different colors.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a light emitting diode having a spectral band of emission that varies according to an electrical characteristics of a power signal applied thereto as the light emitting means of the key of Maeda as modified by Dreher, in order to reduce the number of components required to display different symbols.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEOKYUN MOON whose telephone number is (571)272-5552. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 572-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 23, 2011

/Seokyun Moon/

Examiner, Art Unit 2629